ORDER NO. ARD-7605035C

Service Manual

Tape Deck

RS-620US

High Fidelity Stereo Cassette Deck with Dolby Noise Reduction System and Peak Check Meters

RS-610U MECHANISM SERIES

Specifications (Catalog specifications for sales)

Power requirement:	AC; 90～109/110～125/200～219/220～250 V, 50/60 Hz (not necessary for conversion) Power consumption; 7 W
Motor:	1-electronic speed control motor
Track system:	4-track 2-channel stereo recording and playback
Tape speed:	4.8 cm/s, (1-7/8 ips.)
Wow and flutter:	0.12% (WRMS) ±0.24% (DIN)
Frequency response:	CrO_2 tape; 30～15,000 Hz 30～12,000 Hz (DIN) Normal tape; 30～13,000 Hz 30～11,000 Hz (DIN)
Signal-to-noise ratio:	Dolby NR in; 59 dB (above 5 kHz) Dolby NR out; 49 dB (Signal level=250 nWb/m)
Fast forward and rewind time:	Approx. 90 seconds with C-60 cassette tape
Input:	MIC; sensitivity 0.3 mV/applicable microphone impedance 600Ω～20 KΩ LINE; sensitivity 60 mV/input impedance 47 KΩ
Output:	LINE; output level 0.42 V/load impedance 50 KΩ over HEADPHONES; output level 60 mV/8Ω
REC/PB connection:	5P DIN type
Head:	1-super permalloy head for record/playback 1-ferrite head for erasing
Dimensions:	39.4 cm(W)×12.3 cm(H)×24.8 cm(D) [15-1/2"(W)×4-7/8"(H)×9-3/4"(D)]
Weight:	4.5 kg, (9-7/8 lbs.)

Specifications are subject to change without notice for further improvement.

National Panasonic

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

LOCATION OF CONTROLS AND COMPONENTS

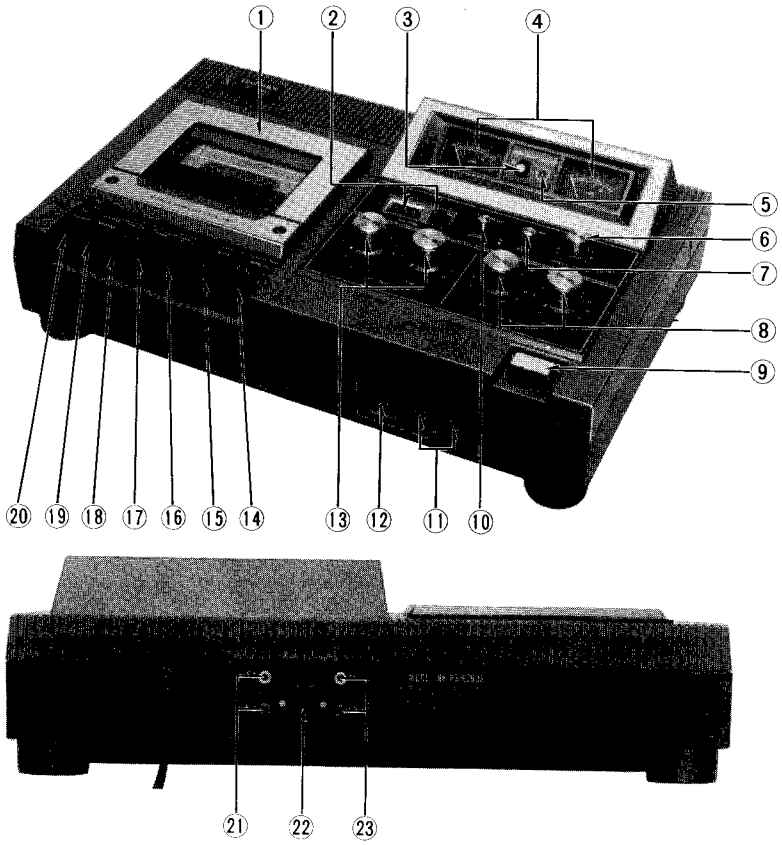


Fig. 1

① Cassette compartment cover
② Tape counter and reset button
③ Peak-signal-check switch
④ Peak level/VU meters
⑤ Recording indication lamp
⑥ Output level control
⑦ Dolby noise-reduction button
⑧ Line input level
⑨ Power switch
⑩ Tape selector
⑪ Microphone jacks
⑫ Headphones jack
⑬ Microphone level controls
⑭ Pause button
⑮ Stop button
⑯ Play button
⑰ Fast forward button
⑱ Rewind button
⑲ Record button
⑳ Eject button
㉑ Line output jacks
㉒ Record/playback connection socket
㉓ Line input jacks

DISASSEMBLY INSTRUCTIONS

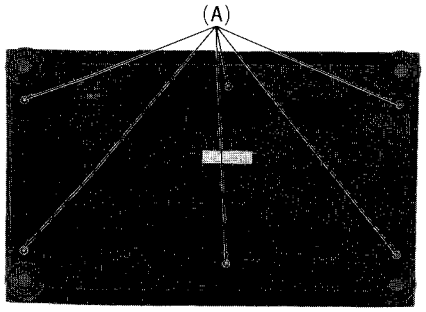


Fig. 2

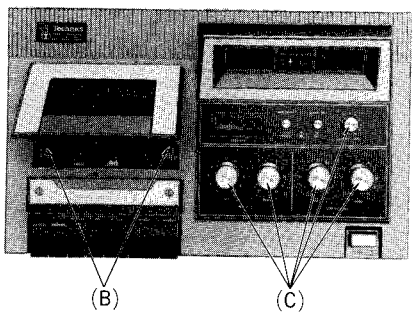


Fig. 3

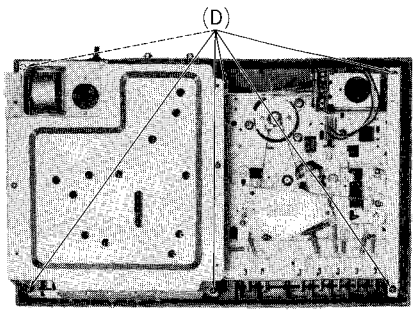


Fig. 4

Procedure	To remove ——.	Remove ——.	Pcs.	Shown in fig. ——.
1	Bottom case	(A)	(6)	2
2	Main case	(B), (C), (D)	(2), (5), (6)	3, 4

ADJUSTMENTS

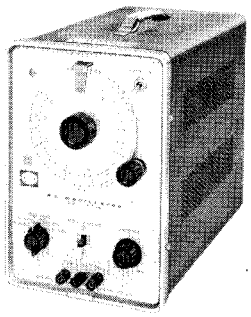
Before measuring and adjusting "Overall frequency response", "Overall distortion" and "Overall S/N ratio", confirm that the characteristics of 5 items below are within standard which have much relation to or influence on electrical performances above.

1. Head azimuth adjustment. 2. Bias current. 3. Playback gain. 4. Overall gain.
5. Playback frequency response.

I. TEST INSTRUMENTS

1. Prepare test instruments which are equivalent in accuracy to those shown below.
2. The test instruments should be inspected and corrected by specialists once every 6 months, because a long period of use without maintenance may increase errors in indication.
3. Warm-up the test instruments for 30 minutes and the set to be measured for 10 minutes before taking the measurements. If not, there may arise an error or difference between the initial value and the stabilized value measured after "aging".
4. Specifications of test instruments.

(1) Audio frequency oscillator



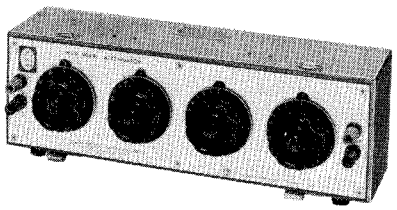
a. Oscillation frequency: 5 Hz ~ 500 kHz (5 ranges)
b. Frequency tolerance: ±(3% + 1 Hz)
c. Sine wave
 * Output voltage: 5 Vrms ±10% (without load)
 (at 25°C) 2.5 Vrms ±10% (with 600Ω load)
 * Output frequency response: Within ±0.2 dB, 20 Hz ~ 20 kHz
 Within ±0.5 dB, 5 Hz ~ 500 kHz
 * Distortion factor: Not more than 0.05%, 200 Hz ~ 20 kHz
 Not more than 0.5%, 5 Hz ~ 500 kHz
 * Output impedance: 600Ω unbalanced, within ±15%
 * Output attenuator: 0, 20 dB, Error: within ±0.2 dB
d. Temperature in use of set: Temperature = 0 ~ 40°C, Humidity = 90% or less

(2) Automatic-stop distortion meter (with vacuum tube voltmeter)

A. Distortion factor measurement
 a. Frequency: (fundamental wave) 400 Hz, 1 kHz ±10%
 b. Measurement: 0.1 ~ 100% (6 ranges)
 c. Input: 50 mV ~ 50 V
 d. Fundamental wave attenuation: 60 dB or more
B. Level measurement
 a. Measurement: 1 mV (−60 dB) ~ 30 V (30 dB) (9 ranges)
 b. Frequency response: (1 kHz basis) 20 Hz ~ 100 kHz ±0.3 dB
 c. Input impedance: 1 MΩ ±10%, less than 50 pF
 d. Error in indicated value: Within ±3% at 1 kHz
C. Output terminal
 a. Frequency response: 10 Hz ~ 100 kHz ±1 dB
 100 kHz ~ 1 MHz ±3 dB
 b. Output voltage: 1 Vrms ±10% (1 kHz sine wave)

(3) Attenuator

a. Input impedance: 600Ω unbalanced
b. Maximum attenuation: 121 dB
c. Minimum attenuation: 0.1 dB



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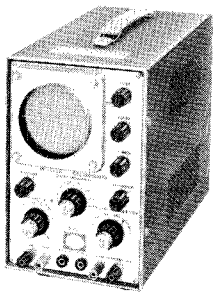
(4) Oscilloscope

a. Cathode ray tube: Effective ranges 8×8 cm
b. Vertical axis
  * Input sensitivity: 30 mV～30 V/cm
  * Frequency band: DC～2 MHz
  * Transient time: 180 ns.
  * Input impedance: 1 MΩ, 35 pF
c. Horizontal axis
  * Tuning range: 30 Hz～2 MHz
  * Sweep time: 1μs～100 ms/cm
  * External sweep: 1 Vp-p/cm or more



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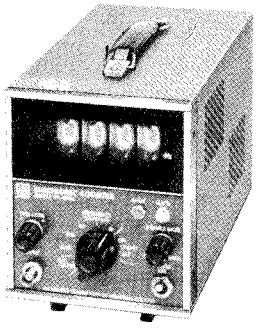
(5) Digital electronic counter

a. Number of figure: 4 (decimal system)
b. Input sensitivity: 100 mVrms
c. Input impedance: 1 MΩ, 40 pF
d. Frequency measurement range: 10 Hz～100 kHz
e. Counting time: 0.1, 1, 10 s



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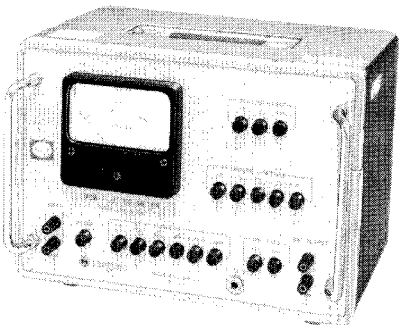
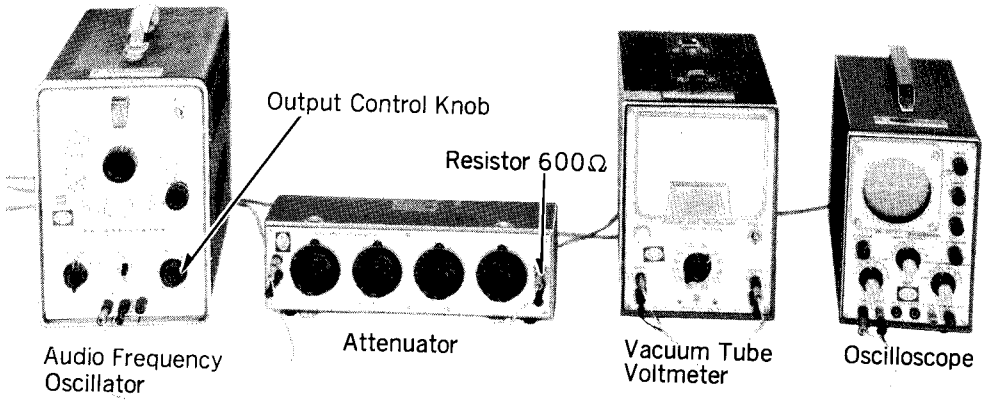
(6) Wow meter

a. Measured center frequency range: 3 kHz ±4%
b. Input level range: 30 mV～3 V
c. Input impedance: About 50 KΩ unbalanced
d. Measurement: 0.01～3% (5 ranges)
e. Indicator error: Maximum error in indicated value ±5% in each range.
f. Frequency response: Conforming to weighting curve characteristics (WRMS), JIS C5551.
  Flat characteristics (RMS)
  0.5～200 Hz, within −3 dB (4 Hz basis)
g. Meter indication system: Effective value indication, conforming to JIS C5551.
h. Meter response characteristic: About 5～7 sec.
i. Oscillation frequency: 3 frequencies (3 kHz, 3 kHz ±3%)
j. Temperature range: 0～40°C



II. MEASUREMENT CONDITIONS

1. Standard measurement conditions
   * Ambient temperature: 10～30°C (50～86°F)
   * Ambient humidity: 30～90% RH
   * Power voltage accuracy: ±3%
2. Position of tape recorder
   * When measuring, place the unit under test in a horizontal position.
3. Oscillator output voltage adjustment
   * Connect the equipments as shown in the following and adjust the oscillator output control knob for 1 V (f = 1 kHz) through the attenuator while keeping the attenuator at 0 dB.
   * When supplying a signal to the tape recorder amplifier, adjust the input level using the attenuator.



III. TEST TAPE

Test tape life

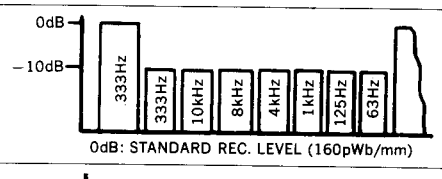
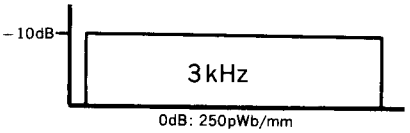
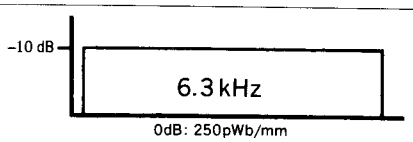
The more frequently the test tape is used, the more the tape characteristics will deteriorate (e.g. lowering of recorded level, worsening of frequency response particularly in high-frequency range, and an increase in wow due to tape elongation) until measured values become unreliable. Even in such a case when a tape is not used, but stored, for a long period of time, tape shows deterioration in performance because of self damagenetization due to storage conditions, etc.

Please refer to the tape life specification and use care not to use a tape longer than its rated life when servicing.

Frequence of use: Not more than 20 times for each tape length.

Storage period: Not more than 6 months.

※ Test tape

PARTS NO.	PARTS NAME	SPECIFICATIONS	REMARKS
C-FH	STANDARD REC. LEVEL & FREQ. RESPONSE TAPE		5 TIMES REPETITIVE RECORDING TAPE SPEED: 1-7/8 IPS. (4.8 CM/S), FULL TRACK (10 MIN.)
C-WAT	WOW & TAPE SPEED TAPE		TAPE SPEED: 1-7/8 IPS. (4.8 CM/S), FULL TRACK (45 MIN.)
C-AA	AZIMUTH TAPE		TAPE SPEED: 1-7/8 IPS. (4.8 CM/S), FULL TRACK (15 MIN.)
C-RA	REFERENCE BLANK TAPE (NORMAL)		UNRECORDED TAPE (20 MIN.)
C-RF	REFERENCE BLANK TAPE (CrO_2)		UNRECORDED TAPE (20 MIN.)

IV. MEASUREMENT & ADJUSTMENT METHOD

NOTE:

1. Make sure heads are clean.
2. Make sure capstan and pressure roller are clean.
3. Judgeable room temperature: 20±5°C (68±9°F)
4. Output level controls: MAX.
5. Dolby NR switch: OUT
6. Tape selector: NORMAL
7. Peak check switch: OUT
8. Microphone level controls: MAX.
9. Line input level controls: MAX.

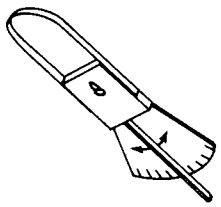
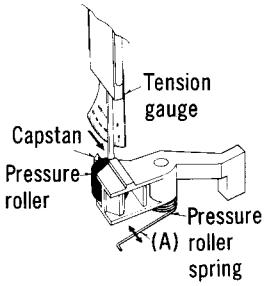
<table>
<tr><th>ITEM</th><th>MEASUREMENT & ADJUSTMENT</th><th>REMARKS</th></tr>
<tr>
<td>Pressure of pressure roller
Equipment:
* Tension gauge (max. 500 gr)
 
Fig. 5</td>
<td>1. Place UNIT into playback mode.
2. Hook the tension gauge to pressure roller lever and pull it in the direction of the arrow as shown in fig. 6.
3. Measure the tension at the moment when the pressure roller moves away from the capstan.
Standard Value: 400±50 gr
Adjustment method
Bend the part (A) of the pressure roller spring in either direction shown by the arrow until the correct pressure is attained.</td>
<td>* Playback mode
 

Fig. 6</td>
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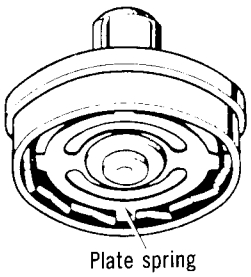
<tr>
<td>Takeup tension
Equipment:
* Cassette torque meter (SRK-CT or RP8063)</td>
<td>1. Mount cassette torque meter on UNIT.
2. Place UNIT into playback mode and read takeup torque.
3. Measure several times and determine the mean value.
Standard Value: 55±15 gr-cm
If the measured value is not within standard, firstly clean the rotational parts of the mechanism with alcohol, and if it still is not within standard, make the following adjustment.
Adjustment method
Adjust by turning the plate spring attached in the takeup reel table (See fig. 7).</td>
<td>* Playback mode
 

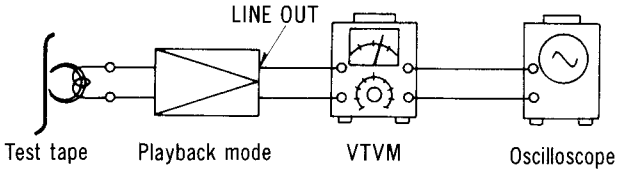
Fig. 7</td>
</tr>
<tr>
<td>Head azimuth adjustment
Equipment:
* VTVM
* Oscilloscope
* Test tape (azimuth)···C-AA</td>
<td>Record/playback head adjustment
1. Test equipment connection is shown below.
 

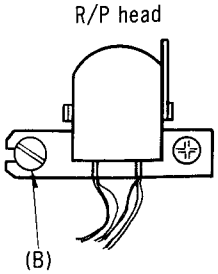
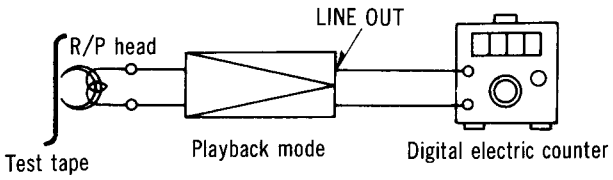
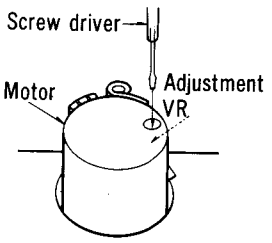
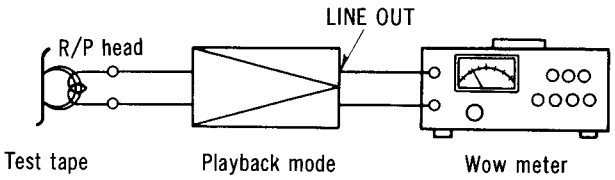
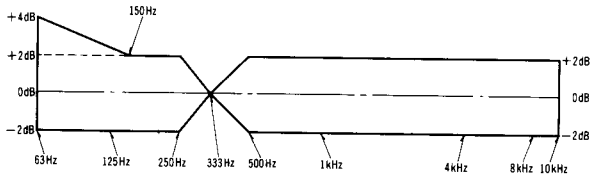
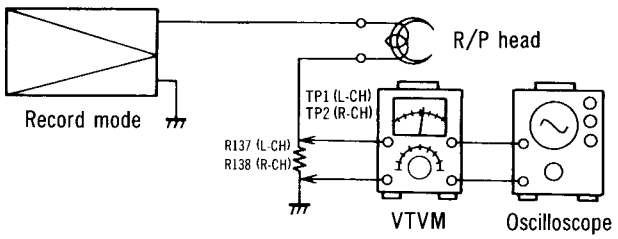
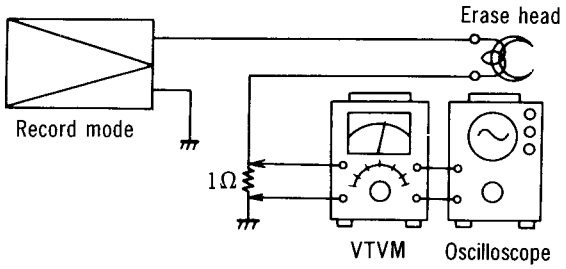
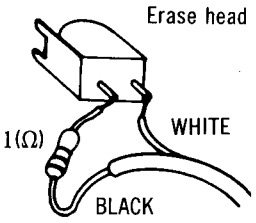
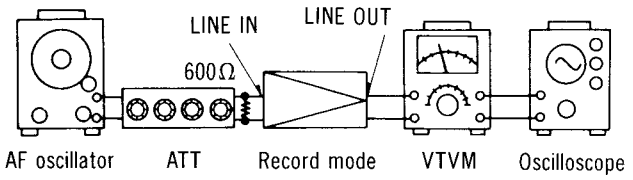
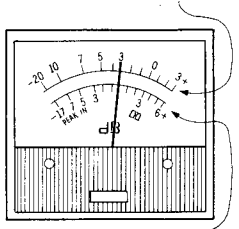
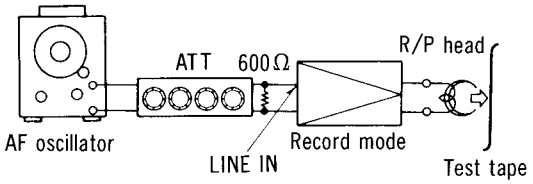
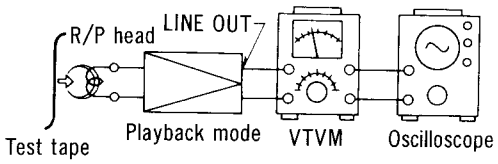
Fig. 8
2. Play azimuth tape (C-AA 6.3 kHz).
3. Adjust record/playback head angle adjustment screw (B) in fig. 9 so that output level at LINE OUT becomes maximum.
4. Measure both channels, and adjust levels for equal output.
5. After adjustment lock head adjustment screw with lacquer.</td>
<td>* Playback mode
 

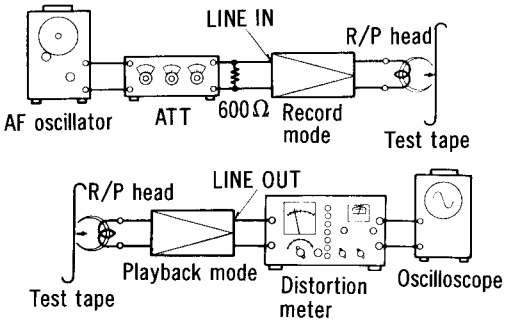
Fig. 9</td>
</tr>
</table>

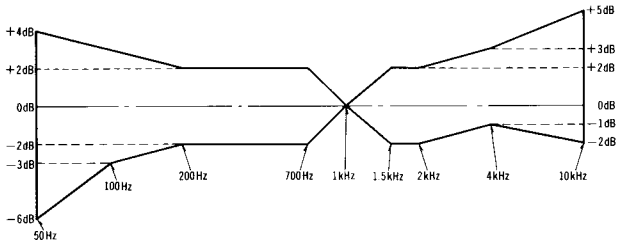
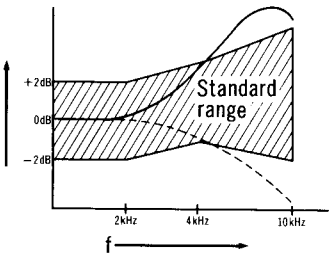
ITEM	MEASUREMENT & ADJUSTMENT	REMARKS
Tape speed Equipment: * Digital electronic counter or frequency counter (RP8067) * Test tape···C-WAT	**Tape speed accuracy** 1. Test equipment connection is shown below.  **Fig. 10** 2. Play test tape (C-WAT 3,000 Hz), and supply playback signal to frequency counter. 3. Measure this frequency. 4. On the basis of 3,000 Hz, determine value by following formula: $\text{Tape speed accuracy} = \left\{\frac{f-3{,}000}{3{,}000} \times 100\right\}\%$ where, f = measured value 5. Take measurement at middle section of tape. **Standard Value: ±1.5%** **Adjustment method** 1. Play the test tape (middle). 2. Adjust the tape speed adjustment VR shown in fig. 11 so that frequency becomes 3,000 Hz. **Tape speed fluctuation** Make measurements in same manner as above (beginning, middle and end of tape), and determine difference between maximum and minimum values and calculate as follows: $\text{Tape speed fluctuation} = \left\{\frac{f_1-f_2}{3{,}000} \times 100\right\}\%$ f_1 = maximum value f_2 = minimum value **Standard Value: 1%**	* Playback mode  **Fig. 11**
Wow and flutter Equipment: * Wow meter * Test tape···C-WAT	1. Test equipment connection is shown below.  **Fig. 12** 2. Use wow test tape (3,000 Hz) and measure its playback signal on wow meter. 3. Wow and flutter is expressed in percentage and that measurement can be weighted by JIS network (WRMS). 4. Measure at middle section of test tape. **Standard Value: 0.15% (WRMS)**	* Playback mode

ITEM	MEASUREMENT & ADJUSTMENT	REMARKS
Playback frequency response Equipment: * VTVM * Oscilloscope * Test tape···C-FH	1. Test equipment connection is as same as "Head azimuth adjustment" but use the test tape (C-FH) instead of head azimuth tape (See fig. 8). 2. Place UNIT into playback mode. 3. Play frequency response test tape (C-FH). 4. Measure output level at 10kHz, 8kHz, 4kHz, 1kHz, 125Hz and 63Hz and compare output level with standard frequency 333Hz, at LINE OUT. 5. Make measurement for both channels. 6. Make sure that the measured value is within the range specified in the frequency response chart. **Playback frequency response chart**  **Fig. 13** 7. If measured value is not in standard, adjust VR1 (L-CH), VR2 (R-CH) (See fig. 22 on page 12).	* Playback mode
Playback gain Equipment: * VTVM * Oscilloscope * Test tape···C-FH	1. Test equipment connection is shown in fig. 8. 2. Play standard recording level portion on test tape (C-FH 333Hz), and using VTVM measure the output level at LINE OUT jack. 3. Make measurement for both channels. **Standard Value: 0.42V (−7dB)** **Adjustment** 1. If measured value is not standard, adjust VR3 (L-CH), VR4 (R-CH) (See fig. 22 on page 12). 2. After adjustment, check "Playback frequency response" again.	* Playback mode
Playback S/N ratio Equipment: * VTVM * Oscilloscope * Test tape···C-FH * Empty cassette	1. Test equipment connection is shown in fig. 8. 2. Play standard recording level test tape (C-FH 333Hz) and read output level on VTVM. Refer to "Playback gain adjustment". 3. Place empty cassette (which has been cut) and play again. 4. Measure noise level at this time using VTVM, and determine ratio of this level to test tape output signal voltage (333Hz). **Standard Value: Greater than 43dB** An example calculation is shown below. A: Es = playback output signal voltage of test tape (333Hz) B: En = playback output noise level Es = 0.42V (−7dB) En = 3.0mV (−50dB) $S/N\ ratio = \frac{Es}{En} = \frac{0.42V}{3.0mV} = 140$ $20 \log_{10} 140 = 43dB$ S/N ratio = Es(dB) − En(dB) = −7−(−50) = 43dB	* Playback mode

ITEM	MEASUREMENT & ADJUSTMENT	REMARKS
Bias current Equipment: * VTVM * Oscilloscope	1. Test equipment connection is shown below.  **Fig. 14** 2. Place UNIT into record mode, and tape selector to "NORMAL" (for normal tape). 3. Read voltage on VTVM and calculate bias current by following formula: $\text{Bias current (A)} = \frac{\text{Value read on VTVM (V)}}{10\,(\Omega)}$ **Standard Value: 0.3±0.1mA** 4. Adjust L3 (L-CH), and L4 (R-CH) (See adjustment part location on page 12). 5. Then changing the tape selector to "CrO_2" (for CrO_2 tape), confirm that bias current become greater by 30% than that for normal.	* Record mode * Be sure the ground end of the meter is connected to the ground end of the resistor. * When bias current is adjusted on one channel only, note that bias current on the other channel may vary.
Erase current Equipment: * VTVM * Oscilloscope * Resistor (1Ω)	1. Connect 1Ω resistor between ground side terminal of erase head ground lead wire removed (See fig. 16). 2. Connect VTVM to both ends of 1Ω resistor.  **Fig. 15** 3. Place UNIT into record mode and, measure voltage across the 1Ω resistor. 4. Determine erase current with the following formula: $\text{Erase current (A)} = \frac{\text{Voltage across both ends of 1 (}\Omega\text{)}}{1\,(\Omega)}$ **Standard Value: 90±10mA (Normal position)** **120±20mA (CrO_2 position)**	* Record mode  **Fig. 16**

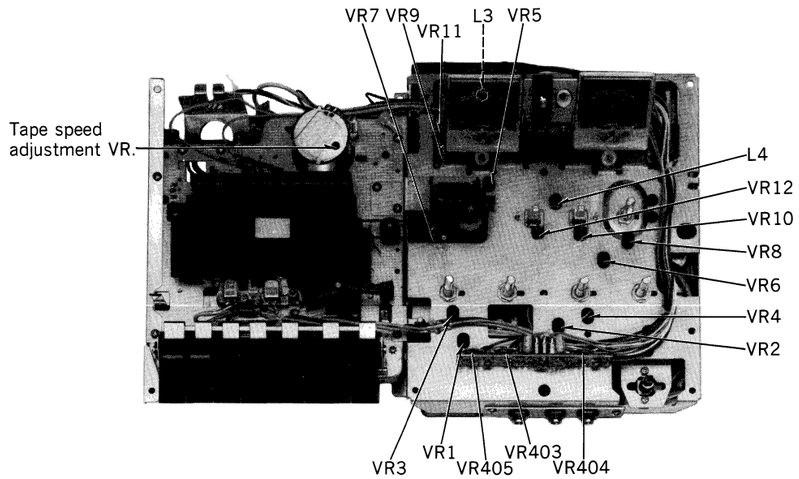
ITEM	MEASUREMENT & ADJUSTMENT	REMARKS
Level meter Equipment: * VTVM * Oscilloscope * AF oscillator * ATT	1. Test equipment connection are shown in fig. 17.  **Fig. 17** 2. Supply 1 kHz signal from AF oscillator, through ATT, to LINE IN jack. 3. Adjust ATT so that monitor level at LINE OUT becomes 0.42 V. 4. Set the peak level check switch to the "IN" position. 5. Adjust VR403 (L-CH) and VR404 (R-CH) so that VU meters indicate 0 VU. 6. Set the peak level check switch to the "OUT" position. 7. Then adjust VR405 for L-CH so that left and right VU meters show the same indication.	* Record mode Calibrations for "OUT" position of peak check switch.  Calibrations for "IN" position of peak check switch.
Overall gain Equipment: * AF oscillator * VTVM * ATT * Oscilloscope * Test tape (reference blank tape) C-RA for Normal C-RF for CrO_2	1. Test equipment connection is shown in fig. 18.   **Fig. 18** 2. Place UNIT into record mode, and tape selector to "NORMAL" (for normal tape). 3. Supply 1 kHz signal (−24 dB) from AF oscillator, through ATT, to LINE IN. 4. Adjust ATT until monitor level at LINE OUT becomes 0.42 V. 5. Using test tape (C-RA), make recording. 6. Playback recorded tape, and make sure the value at LINE OUT on VTVM becomes 0.42 V. 7. If measured value is not 0.42 V, adjust VR9 (L-CH), VR10 (R-CH). (See fig. 22 on page 12) 8. Repeat from step (2). 9. For CrO_2 tape, tape selector to "CrO_2", change test tape to (C-RF), and take the same steps for normal but to adjust, use VR11 (L-CH) and VR12 (R-CH).	* Record/playback mode * LINE IN level control ···MAX * Standard input level: MIC ····· −70±3 dB LINE IN −24±3 dB DIN ····· −36±3 dB

ITEM	MEASUREMENT & ADJUSTMENT	REMARKS
Overall distortion Equipment: * Distortion meter * AF oscillator * ATT * Oscilloscope * Test tape (reference blank tape) ···C-RA	1. Test equipment connection is shown in fig. 19.  **Fig. 19** 2. Supply 1kHz signal to LINE IN and adjust ATT so that output level at LINE OUT indicates 0.42V (−7dB). 3. Make recording. 4. Playback and measure distortion factor of output signal. 5. When the distortion factor does not satisfy the standard, check the bias current. When the bias current is lower than standard, distortion will increase. Care should be exercised in the adjustment because the bias current also has an influence on the overall frequency response. Refer to "The overall frequency response" and "The bias current adjustment". **Standard Value: Less than 3.0% (Normal)** **Less than 3.5% (CrO_2)**	* LINE IN level control ···MAX
Overall frequency response Equipment: * VTVM * AF oscillator * ATT * Test tape (reference blank tape) C-RA for Normal C-RF for CrO_2	**Note:** Before measuring and adjusting, make sure of the playback frequency response (For the method of measurement, please refer to the playback frequency response). 1. Test equipment connection is shown in fig. 18. 2. Load reference blank test tape. 3. Place UNIT into record mode and tape selector to "NORMAL". 4. Supply 1kHz signal from AF oscillator through ATT to LINE IN. 5. Adjust ATT so that input level is −20dB below standard recording level (standard recording level=0 VU). 6. At this time, LINE OUT level indicates 0.042V. 7. Record each frequency 50Hz, 100Hz, 200Hz, 700Hz, 1kHz, 1.5 kHz, 2kHz, 4kHz and 10kHz at the same level. 8. Playback and express in dB the difference between playback output level of each frequency based on playback output level of 1kHz. 9. Make sure that the measured value is within the range specified in the overall frequency response chart (fig. 20). 10. Change the tape selector to "CrO_2" (for CrO_2 tape). 11. Measure as same as manner above. 12. Make sure that the measured value is within the range specified in the overall frequency response chart (fig. 20).	* Record/playback mode * Record level control ···MAX

ITEM	MEASUREMENT & ADJUSTMENT	REMARKS
Overall frequency response (As a standard for adjustment)	Overall frequency response chart  **Fig. 20** Adjustment method — Using bias current  **Fig. 21** 1. When the frequency response between the middle- and high-frequency range becomes higher than the standard value, as shown by the solid line in figure 21 increase the bias current by turning L3 (L-CH), L4 (R-CH). 2. When it becomes lower, as shown by dotted line, reduce the bias current by turning in the direction opposite to arrow indication. **Note:** 1. After adjustment the bias current has to be higher than the 0.2 mA (Standard value: 0.3 ± 0.1 mA), because reducing the bias current beyond this point may worsen the distortion factor. 2. For the method of bias current measurement, refer to "Bias current adjustment" on page 8.	
Overall S/N ratio Equipment: * VTVM * AF oscillator * ATT * Oscilloscope * Test tape (reference blank tape) ···C-RA	1. Test equipment connection is shown in fig. 18. 2. Supply 1 kHz signal to LINE IN and adjust ATT so that output level at LINE OUT indicates 0.42 V (−7 dB). 3. Make recording. 4. Make another recording without supplying signal (disconnect input plug to LINE IN). 5. Rewind to recorded part and playback. 6. Measure output signal level and no signal level (noise), and determine the ratio in decibels (dB). 7. The value is difference between "Playback S/N and overall S/N", but for decibel calculation refer to "Playback S/N measurement" on page 7. **Standard Value: Greater than 40 dB (without NAB filter)**	* Record/playback mode * LINE IN level control ···MAX * Erase the tape with a bulk tape eraser.

ITEM	MEASUREMENT & ADJUSTMENT	REMARKS
Dolby NR circuit Equipment: * VTVM * AF oscillator * ATT * Oscilloscope	1. Place UNIT into record mode, set the Dolby NR switch to OUT position and supply to LINE IN to obtain −34.5 dB at TP3 (L-CH), TP4 (R-CH) (frequency 5 kHz). 2. Confirm that the value at IN position is 8 dB greater than the value at OUT position of Dolby NR switch. 3. When it is not in condition above, adjust as follows. 4. Set VR5 (L-CH), VR6 (R-CH) to maximum. 5. Set the Dolby NR switch to IN position. 6. At this time adjust VR7 (L-CH), VR8 (R-CH) so that the reading of VTVM become 10 dB greater than the value in step (1) above. 7. Adjusting VR5 (L-CH), VR6 (R-CH), make the reading of VTVM become 2 dB smaller than the value obtainted through the adjustment in step (6) above.	* Record mode * LINE IN level control ...MAX * Stop the bias oscillation by unsoldering point Ⓐ on page14.

ADJUSTMENT PARTS LOCATION



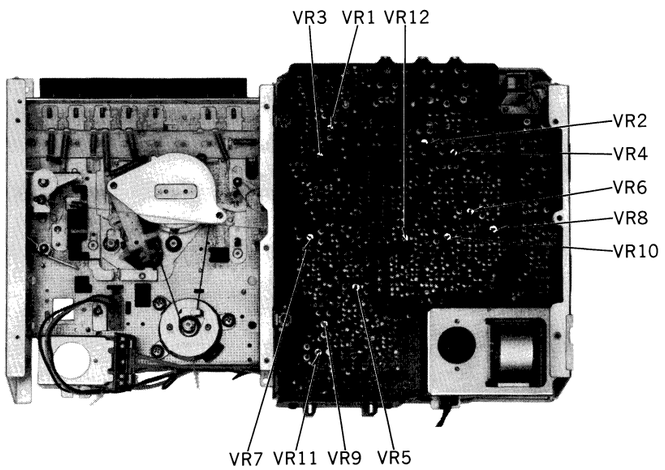
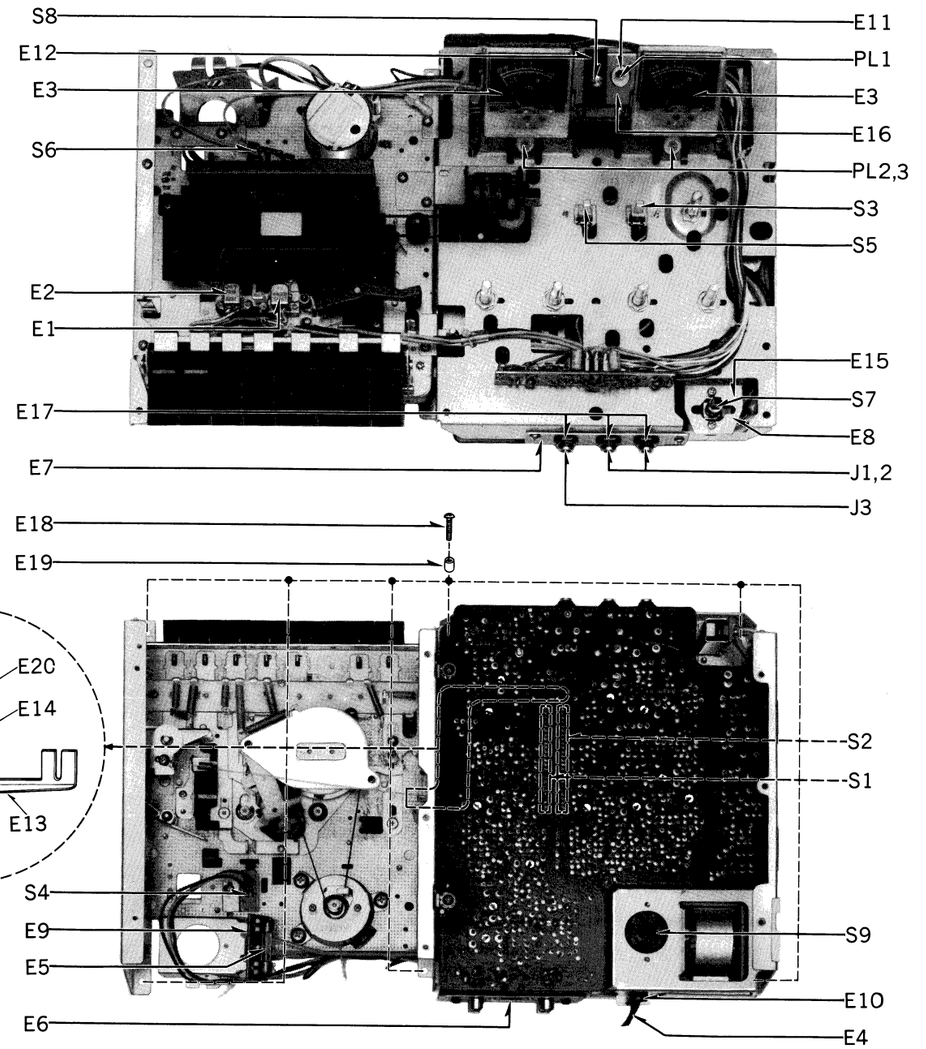


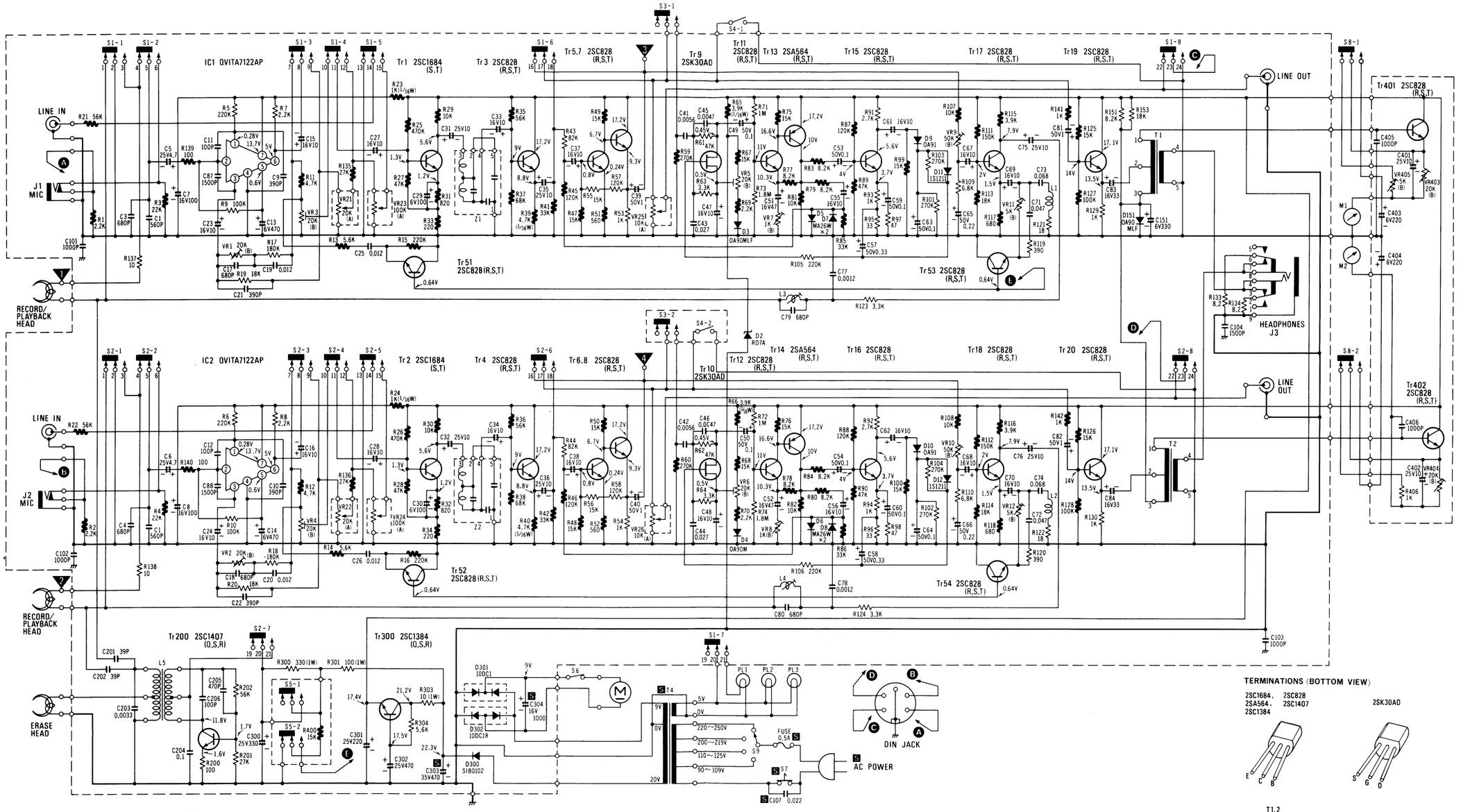
Fig. 22

ELECTRICAL PARTS LOCATION



※When the main circuit board is installed, be sure that the record/playback select lever (E13) and slide switches (S1 and S2) are placed in proper position.

SCHEMATIC DIAGRAM MODEL RS-620US



NOTE:

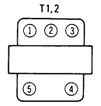
1. S1-1～S1-8, S2-1～S2-8 ··· Record/playback select switch (shown in playback position).
2. S3-1, S3-2 ····· Dolby noise reduction switch (shown in "OUT" position).
3. S4-1, S4-2 ····· Muting switch (shown in OFF position).
4. S5-1, S5-2 ····· Tape select switch (shown in "NORMAL" position).
5. S6 ····· Motor ON/OFF switch (shown in ON position).
6. S7 ····· Power ON/OFF switch (shown in ON position).
7. S8-1, S8-2 ····· Peak signal check switch (shown in "OUT" position).
8. S9 ····· AC voltage select switch.
9. VR1, 2 ····· Playback equalizer adjustment VR.
10. VR3, 4 ····· Playback gain adjustment VR.
11. VR5～8 ····· Dolby NR adjustment VR.
12. VR9, 10 ····· Recording current adjustment VR (for normal tape).
13. VR11, 12 ····· Recording current adjustment VR (for CrO_2 tape).
14. VR21, 22 ····· MIC input level control.
15. VR23, 24 ····· LINE IN input level control.
16. VR25, 26 ····· Output level control.
17. VR403, 404 ····· Level meter adjustment VR.
18. VR405 ····· Level meter balance adjustment VR.
19. L3, 4 ····· Bias trap adjustment coil.
20. LL1 ····· Recording indication lamp.
21. PL2, 3 ····· Level meter indication lamp.
22. Resistor values are in ohms (Ω), 1/4 watt unless specified otherwise.
    K=1,000Ω.
    Resistors indicated thickly show printed type resistor.
23. Capacitor values are in microfarads (μF) unless specified otherwise.
    P=Pico-farads.
24. Voltage values are under no signal conditions with volume at minimum position.
25. The mark (▼) shows test point. e.g. ∇=test point 1.
26. **S** indicates that only parts specified by the manufacturer be used for replacement in critical circuits.

TERMINATIONS (BOTTOM VIEW)

2SC1684, 2SA564, 2SC1384 — 2SC828, 2SC1407

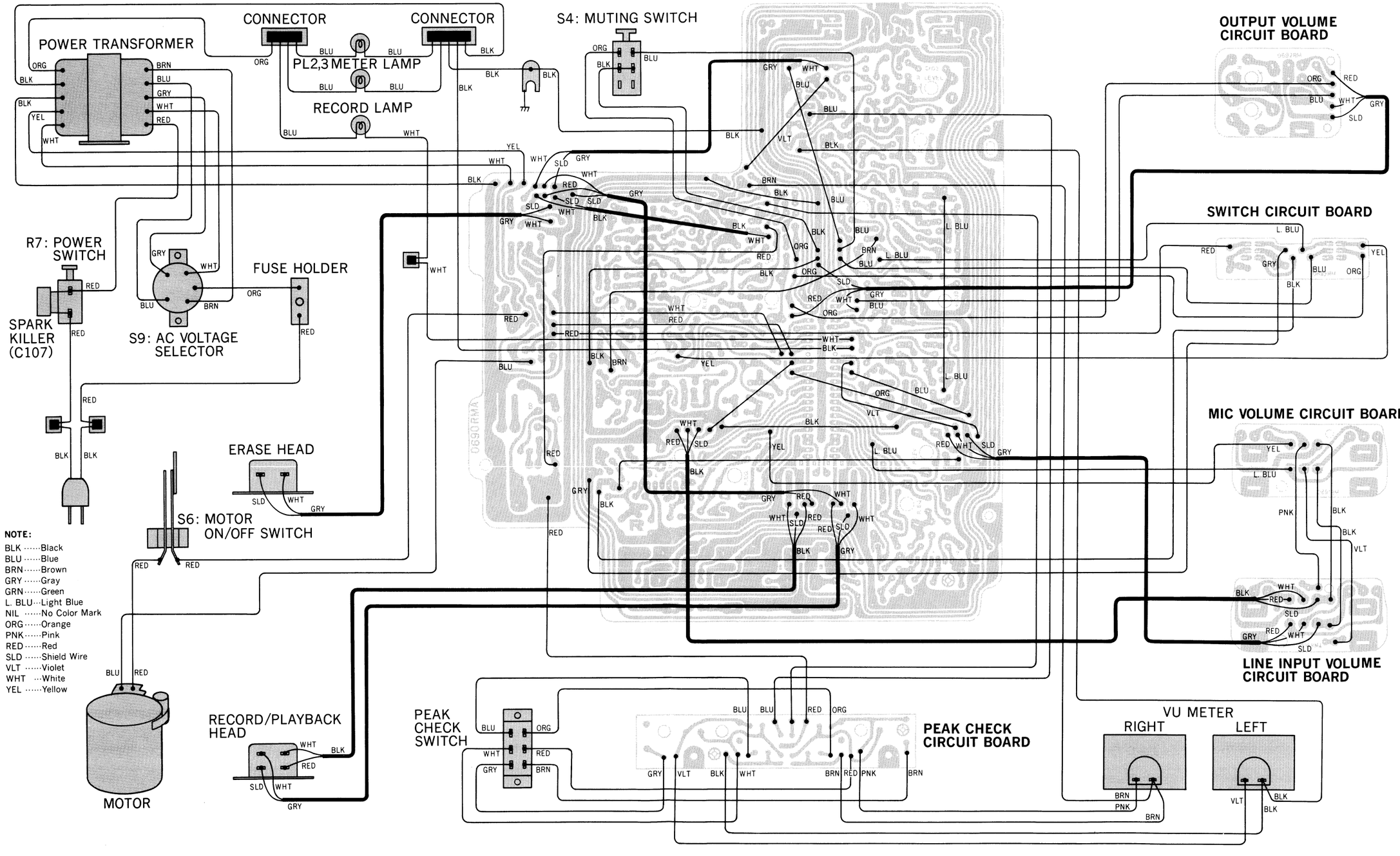
2SK30AD

T1,2



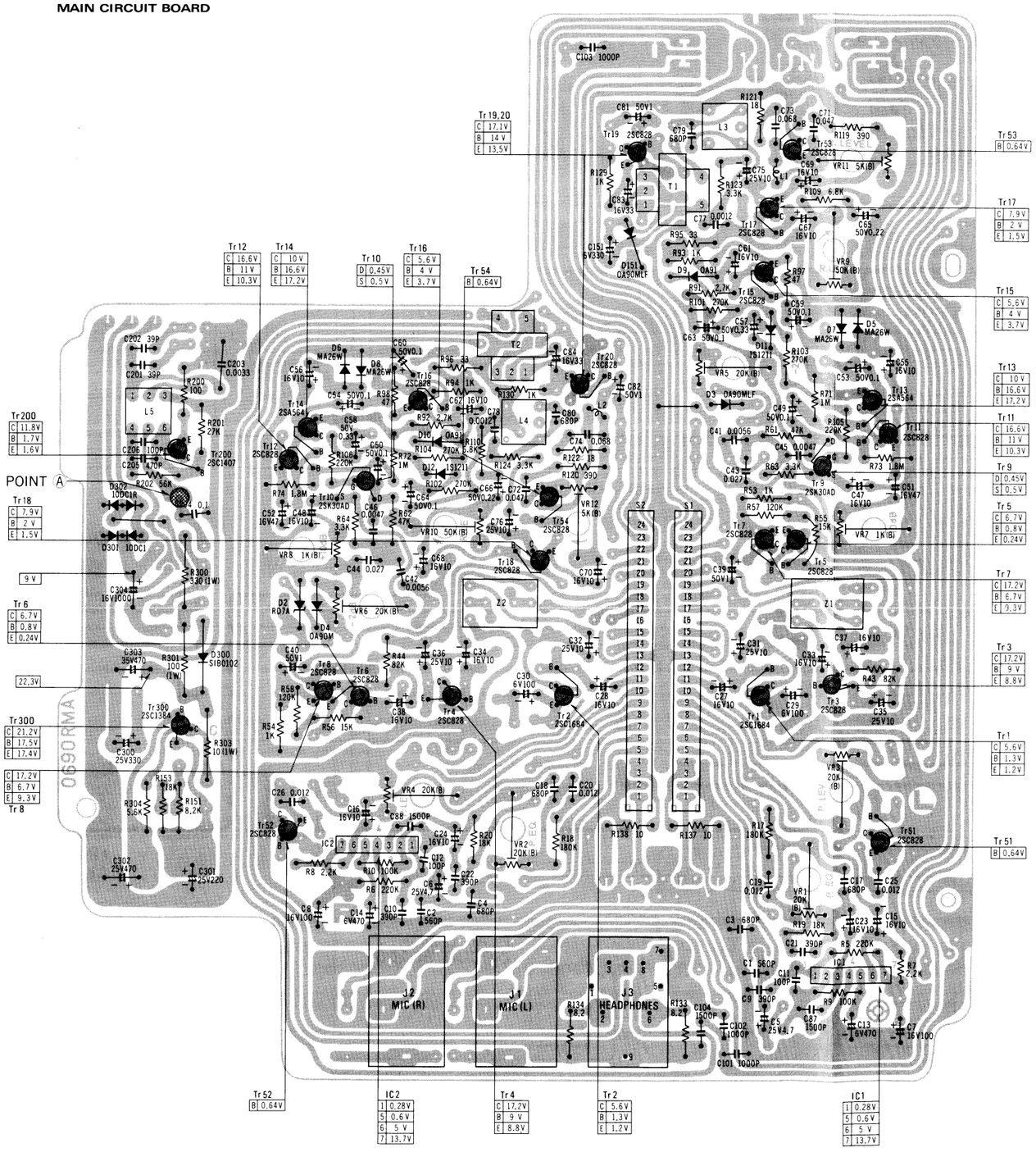
L5

WIRING CONNECTION DIAGRAM MODEL RS-620US

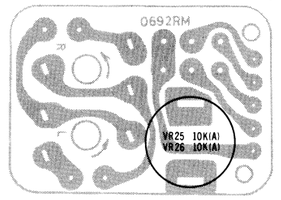


CIRCUIT BOARD

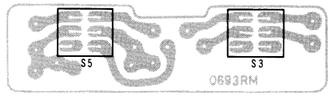
MAIN CIRCUIT BOARD


POINT A
0690RMA
Tr 19,20 C 17.1V B 14 V E 13.5V
Tr 53 B 0.64V
Tr 17 C 7.9V B 2 V E 1.5V
Tr 15 C 5.6V B 4 V E 3.7V
Tr 13 C 10 V B 16.6V E 17.2V
Tr 11 C 16.6V B 11 V E 10.3V
Tr 9 D 0.45V S 0.5V
Tr 5 C 6.7V B 0.8V E 0.24V
Tr 7 C 17.2V B 6.7V E 9.3V
Tr 3 C 17.2V B 9 V E 8.8V
Tr 1 C 5.6V B 1.3V E 1.2V
Tr 51 B 0.64V
Tr 12 C 16.6V B 11V E 10.3V
Tr 14 C 10 V B 16.6V E 17.2V
Tr 10 D 0.45V S 0.5V
Tr 16 C 5.6V B 4 V E 3.7V
Tr 54 B 0.64V
Tr 200 C 11.8V B 1.7V E 1.6V
Tr 18 C 7.9V B 2 V E 1.5V
9 V
Tr 6 C 6.7V B 0.8V E 0.24V
22.3V
Tr 300 C 21.2V B 17.5V E 17.4V
C 17.2V B 6.7V E 9.3V Tr 8
Tr 52 B 0.64V
IC2 1 0.28V 5 0.6V 6 5 V 7 13.7V
Tr 4 C 17.2V B 9 V E 8.8V
Tr 2 C 5.6V B 1.3V E 1.2V
IC1 1 0.28V 5 0.6V 6 5 V 7 13.7V
J2 MIC (R)
J1 MIC (L)
J3 HEADPHONES
VR11 5K(B) LEVEL
VR9 50K(B)
VR5 20K(B)
VR12 5K(B)
VR10 50K(B)
VR8 1K(B)
VR6 20K(B)
VR4 20K(B)
VR2 20K(B)
VR1 20K(B)
VR3 20K(B)
VR7 1K(B)

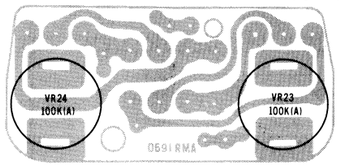
OUTPUT LEVEL CONTROL CIRCUIT BOARD



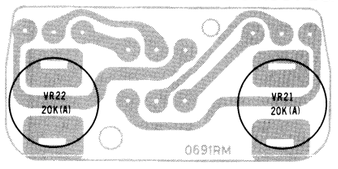
SWITCH CIRCUIT BOARD



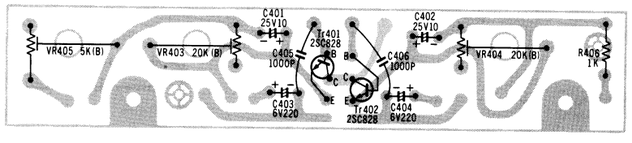
MICROPHONE LEVEL CONTROL CIRCUIT BOARD



LINE INPUT LEVEL CONTROL CIRCUT BOARD

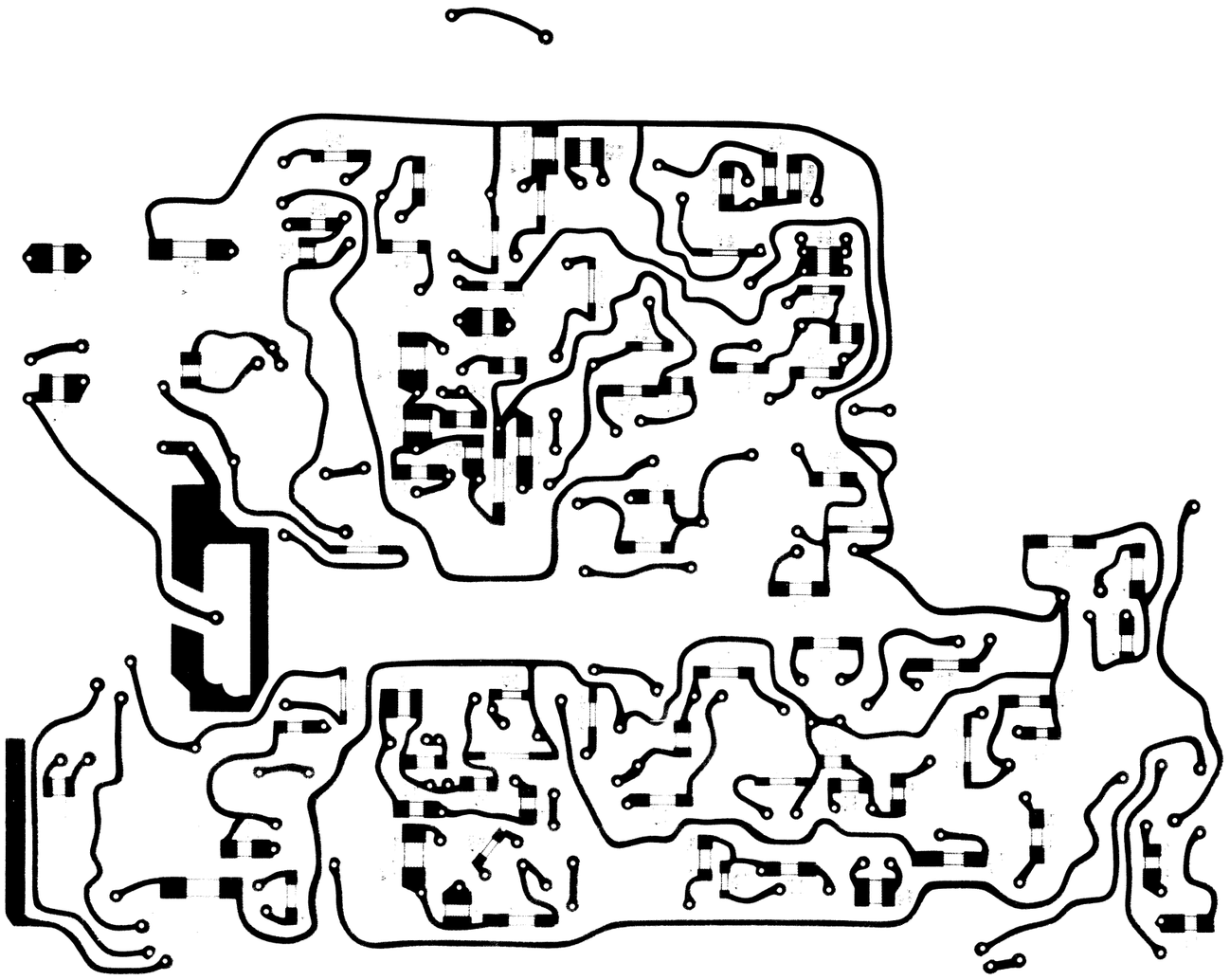


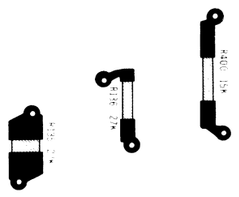
LEVEL METER CIRCUIT BOARD



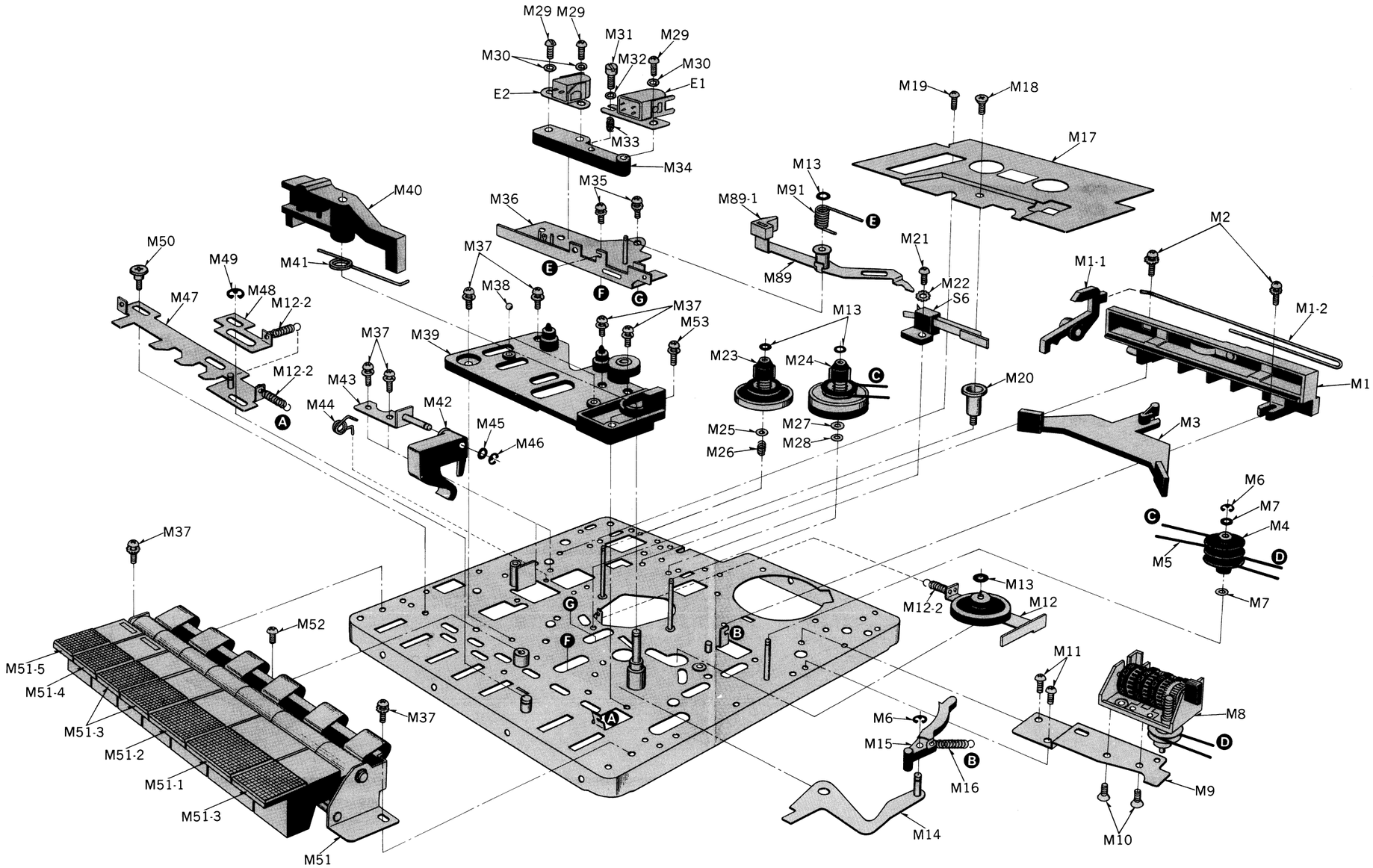
NOTE:

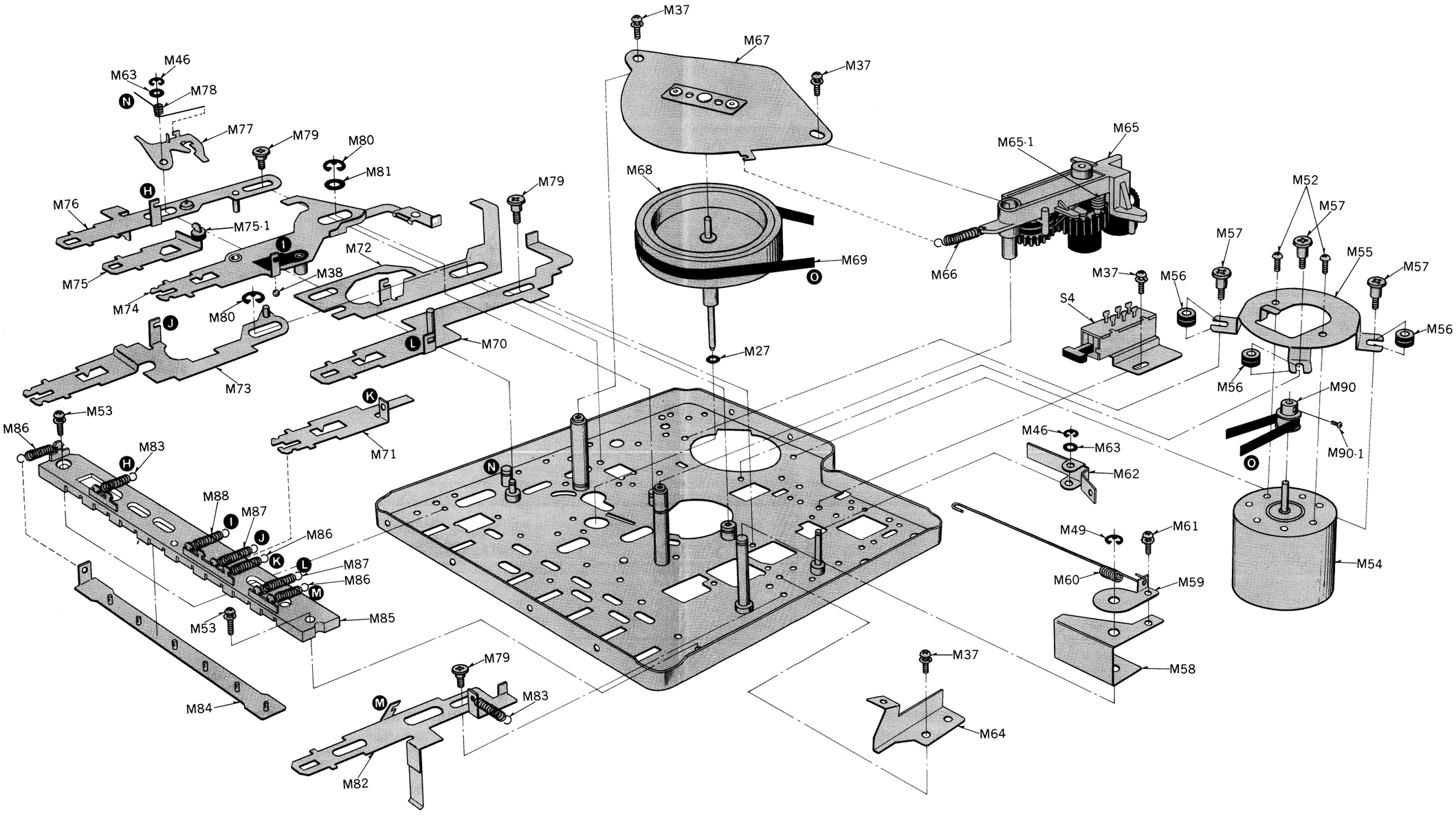
The circuit shown in red on the conductor is B circuit.
Values indicated in ▭ are DC voltage between the chassis and electrical parts.
The upper values should be measured during recording and the lower values during playback.



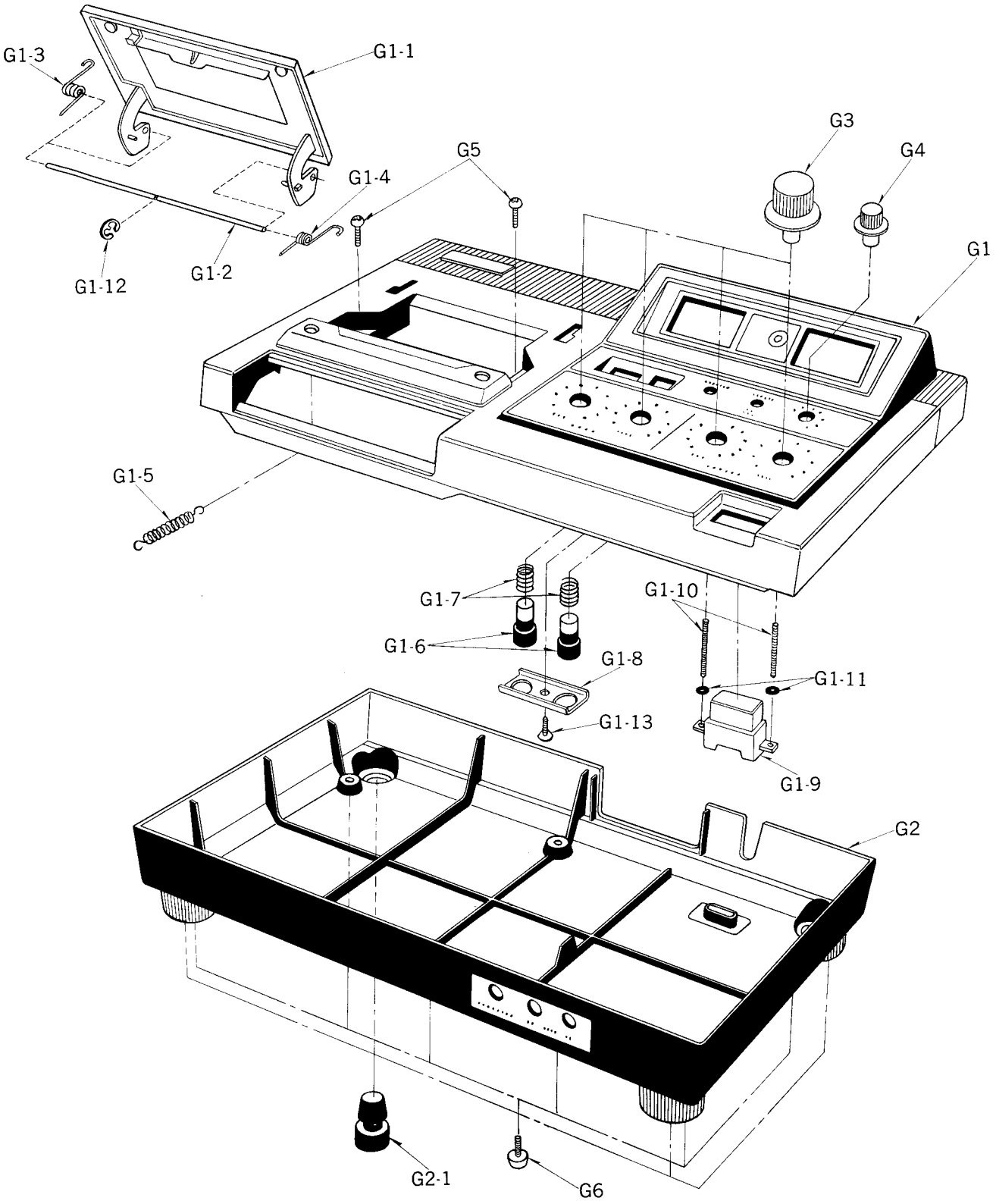


EXPLODED VIEWS




M37
M67
M37
M46
M63
M78
M77
M79
M80
M81
M68
M69
M65
M65-1
M66
M52
M57
M57
M55
M57
M37
M56
S4
M56
M76
M75-1
M72
M38
M75
M74
M80
M79
M70
M73
M27
M56
M90
M90-1
M53
M86
M83
M71
M88
M87
M86
M87
M86
M85
M53
M84
M79
M83
M82
M46
M63
M62
M49
M61
M60
M59
M58
M54
M37
M64

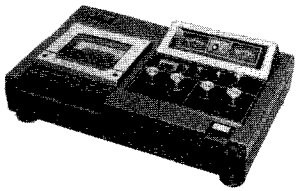
CABINET PARTS



REPLACEMENT PARTS LIST

MODEL RS-620US

National Panasonic



RS-620US

NOTE:

1. Be sure to make your orders of replacement parts according to this list.
2. "Ⓝ" in "Remarks" column indicates new parts.
3. SAFETY indicates that only parts specified by the manufacturer be used for replacement in critical circuits.

NOTA:

1. Habrá que asegurarse que los pedidos de piezas de repuesto se hagan según esta lista.
2. "Ⓝ" marcado en la columna "Remarks", quiere decir que las piezas son nuevas.
3. La inscripción SAFETY, que hay en algunas piezas, quiere decir que, en caso de recambiarlas, habrá que usar únicamente piezas especificadas y aprobadas por la compañia fabricadora.

NOTE:

1. Bien s'assutet de se conformer à la liste suivante pour les commandes de pièces de rechange.
2. "Ⓝ", dans la colonne "Remarks", indique les pièces nouvelles.
3. Une pièce portant l'inscription SAFETY doit être remplacée uniquement par une pièce spécifiée par le fabricant.

HIENWEIS:

1. Bestellen Sie Ihre Ersatzteile genau nach dieser Liste.
2. "Ⓝ" in der "Remarks" Spalte bedeutet "neue Teile".
3. Der Vermerk SAFETY bedeutet, dass nur Ersatzteile, die vom Hersteller dazu bestimmt sind, verwendet werden dürfen.

按:

1. 關於代用零件之訂購, 務請依照此表而行之爲荷。
2. 「備考」(Remarks)一欄中之 "Ⓝ" 形符號標記表示該零件爲新出品。
3. SAFETY 的標號表示, 僅有那些由製造公司所指定及證明的零件, 才能用來代換。

Ref. No.	Part No.	Part Name & Description	Pcs/ Set	Remarks
		MECHANICAL PARTS		
M1	QXQK0015	Cassette Retainer Assembly	1	RS-260US
M1-1	QBJ1975B	Erase Safety Lever	1	RS-610US
M1-2	QBS1057	Brake Spring	1	〃
M2	XYN26+E8	Screw ⊕2.6×8	2	COMMON
M3	QBJ1941A	Brake	1	RS-260US
M4	QDP1681	Connection Pulley	1	Ⓝ
M5	QDB0084	Counter Belt	2	RV-2600S
M6	XUC25FT	Stop Ring 2.5φ	2	COMMON
M7	QBW2016	Washer	2	RQ-218S
M8	QDC0081	Tape Counter	1	Ⓝ
M9	QMA2791	Counter Angle	1	Ⓝ
M10	XSS3+6S	Screw ⊕3×6	2	COMMON
M11	XTV3+8B	Tapping Screw ⊕3×8	2	〃
M12	QXLM008	Idler Lever Assembly	1	RS-263AUS
M12-1	QXI0050	Idler	1	〃
M12-2	QBT1619M	Idler Spring	3	〃
M13	QBW2008	Washer	4	RQ-543DS
M14	QXL0830	Auto Stop Driving Lever Assembly	1	RQ-514DS
M15	QBJ1656	Auto Stop Driving Pawl	1	RS-263AUS
M16	QBT1489M	Auto Stop Spring	1	〃
M17	QXH0211	Mechanism Panel Ornament	1	Ⓝ
M18	XSS26+6BVS	Screw ⊕2.6×6	1	COMMON
M19	XSN26+6	Screw ⊕2.6×6	1	〃
M20	QMP1530	Pole	1	RS-610US
M21	XSN2+6	Screw ⊕2×6	1	COMMON
M22	XWC2B	Lock Washer 2φ	1	〃
M23	QXD0034A	Supply Reel Table Assembly	1	Ⓝ
M24	QXP0395B	Takeup Reel Table Assembly	1	Ⓝ
M25	QBW2013	Washer	1	RS-263AUS
M26	QBC1272	Back Tension Spring	1	RS-671US
M27	QBJ3221	Washer	2	RQ-309AS
M28	QBW2012	Washer	1	RQ-317S
M29	XSN2−12	Screw ⊖2×12	3	COMMON

Ref. No.	Part No.	Part Name & Description	Pcs/ Set	Remarks
M30	XWA2B	Spring Washer 2φ	3	COMMON
M31	QHQ1199A	Head Azimuth Adjustment Screw	1	RS-269US
M32	XWE2B	Flat Washer	1	COMMON
M33	QBC1103A	Head Spring	1	RS-610US
M34	QBJ2087A	Head Spacer	1	〃
M35	XYN26+E6	Screw ⊕2.6×6	2	COMMON
M36	QXL0918A	Head Base Plate Assembly	1	Ⓝ
M37	XYN26+C6	Screw ⊕2.6×6	13	COMMON
M38	QDK1012	Steel Ball 2.5φ	4	RS-610US
M39	QXK1331	Upper Base Plate Assembly	1	〃
M40	QXLM010	Pressure Roller Lever Assembly	1	〃
M41	QBN1389	Pressure Roller Spring	1	〃
M42	QKJ0055	Cassette Up	1	〃
M43	QXA0307	Cassette Up Holder Assembly	1	〃
M44	QBNM0006	Cassette Up Spring	1	〃
M45	QBK7122	Fiber Washer	1	〃
M46	XUC2FT	Stop Ring 2φ	1	COMMON
M47	QXR0077A	Operation Lever Assembly	1	Ⓝ
M48	QMR1411	Operation Lever-C	1	RS-610US
M49	XUC3FT	Stop Ring 3φ	1	COMMON
M50	QHQ1169	Step Screw	1	Ⓝ
M51	QXB0333A	Push Button Assembly	1	Ⓝ
M51-1	QGO1188	Push Button (STOP)	1	Ⓝ
M51-2	QGO1189	Push Button (PLAY)	1	Ⓝ
M51-3	QGO1192	Push Button (PAUSE, FF, REW)	3	Ⓝ
M51-4	QGO1190	Push Button (RECORD)	1	Ⓝ
M51-5	QGO1191	Push Button (EJECT)	1	Ⓝ
M52	XSN26+3	Screw ⊕2.6×3	1	COMMON
M53	XYN26+C10	Screw ⊕2.6×10	3	〃
M54	QDM0980XPAB	Motor	1	RS-263AUS
M55	QMA1952A	Motor Angle	1	RS-260US
M56	QBG1055A	Motor Rubber Cushion	3	〃
M57	QMS1833	Step Screw	3	〃
M58	QML2833	Record Lever-1	1	Ⓝ
M59	QML2834	Record Lever-2	1	Ⓝ

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Ref. No.	Part No.	Part Name & Description	Pcs/ Set	Remarks
M60	QBT1789	Record/Playback Connection Spring	1	Ⓝ
M61	XYN3+E6S	Screw ⊕3×6	1	COMMON
M62	QML2712	Eject Operation Lever	1	Ⓝ
M63	QBK7121	Fiber Washer	2	RS-610US
M64	QMA2505	Stopper	1	Ⓝ
M65	QXG1014E	Fast Forward Frame Assembly	1	RS-450S
M65-1	QBN1447A	Gear Lever Spring	1	〃
M66	QBT1485M	Fast Forward Lever Spring	1	RS-610US
M67	QXH0095A	Flywheel Retainer Assembly	1	〃
M68	QXF0063	Flywheel Assembly	1	〃
M69	QDB0141	Capstan Belt	1	〃
M70	QXL0828	Record Lever Assembly	1	〃
M71	QML1953A	Rewind Lever	1	〃
M72	QMR1307A	Fast Forward Rod	1	RS-260US
M73	QXR0002B	Fast Forward Lever Assembly	1	〃
M74	QXRM0002A	Playback Lever Assembly	1	RS-610US
M75	QXR0241	Stop Rod Assembly	1	Ⓝ
M75-1	QBG1497A	Brake Rubber	1	RS-260US
M76	QXL0826	Pause Lever Assembly	1	RS-610US
M77	QML2379B	Lock Plate	1	RS-260US
M78	QBN1271	Lock Spring	1	〃
M79	QHQ1168	Step Screw	3	RS-610US
M80	XUC5FT	Stop Ring 5φ	2	COMMON
M81	QBK7130	Fiber Washer	1	RS-610US
M82	QXL1014	Eject Lever	1	Ⓝ
M83	QBT1604M	Eject Lever Spring	2	RS-610US
M84	QXH0194	Lock Rod Assembly	1	〃
M85	QGG0050	Lever Guide	1	〃
M86	QBT1580M	Stop Lever Spring	3	〃
M87	QBT1486M	Record Lever Spring	2	〃
M88	QBT1536DMA	Playback Lever Spring	1	RS-460S
M89	QXL0482A	Auto Stop Detecting Lever Assembly	1	RQ-514FDS
M89-1	QBJ1538A	Auto Stop Detecting Piece	1	〃
M90	QXP0494	Motor Pulley Assembly	1	RS-263AUS
M90-1	XSN2+3	Screw ⊕2×3	1	〃

Ref. No.	Part No.	Part Name & Description	Pcs/ Set	Remarks
M91	QBN1390	Auto Stop Detecting Spring	1	RS-263AUS
		RESISTORS		
R5, 6	ERD25TJ224	Carbon Resistor 220KΩ 1/4W	2	
R7, 8	ERD25TJ222	〃 2.2KΩ 1/4W	2	
R9, 10	ERD25TJ104	〃 100KΩ 1/4W	2	
R17, 18	ERD25TJ184	〃 180KΩ 1/4W	2	
R19, 20	ERD25TJ183	〃 18KΩ 1/4W	2	
R43, 44	ERD25TJ823	〃 82KΩ 1/4W	2	
R53, 54	ERD25TJ102	〃 1KΩ 1/4W	2	
R55, 56	ERD25TJ153	〃 15KΩ 1/4W	2	
R57, 58	ERD25TJ124	〃 120KΩ 1/4W	2	
R61, 62	ERD25TJ473	〃 47KΩ 1/4W	2	
R63, 64	ERD25TJ332	〃 3.3KΩ 1/4W	2	
R71, 72	ERD25TJ105	〃 1MΩ 1/4W	2	
R73 74	ERD25TJ185	〃 1.8MΩ 1/4W	2	
R91, 92	ERD25TJ272	〃 2.7KΩ 1/4W	2	
R93, 94	ERD25TJ102	〃 1KΩ 1/4W	2	
R95, 96	ERD25TJ330	〃 33Ω 1/4W	2	
R97, 98	ERD25TJ470	〃 47Ω 1/4W	2	
R101, 102, 103, 104				
	ERD25TJ274	〃 270KΩ 1/4W	4	
R105, 106	ERD25TJ224	〃 220KΩ 1/4W	2	
R109, 110	ERD25TJ682	〃 6.8KΩ 1/4W	2	
R119, 120	ERD25TJ391	〃 390Ω 1/4W	2	
R121, 122	ERD25TJ180	〃 18Ω 1/4W	2	
R123, 124	ERD25TJ332	〃 3.3KΩ 1/4W	2	
R129, 130	ERD25TJ102	〃 1KΩ 1/4W	2	
R133, 134	ERD25TJ8R2	〃 8.2Ω 1/4W	2	
R137, 138	ERD25TJ100	〃 10Ω 1/4W	2	
R151	ERD25TJ822	〃 8.2KΩ 1/4W	1	
R153	ERD25TJ183	〃 18KΩ 1/4W	1	
R200	ERD25TJ101	〃 100Ω 1/4W	1	
R201	ERD25TJ273	〃 27KΩ 1/4W	1	
R202	ERD25TJ563	〃 56KΩ 1/4W	1	

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Ref. No.	Part No.	Part Name & Description	Pcs/ Set	Remarks
R300	ERG1ANJ331	Metal-oxide Resistor 300Ω 1W	1	
R301	ERG1ANJ101	〃 100Ω 1W	1	
R303	ERX1ANJ100	〃 10Ω 1W	1	
R304	ERD25TJ562	Carbon Resistor 5.6KΩ 1/4W	1	
R406	ERD25TJ102	〃 1KΩ 1/4W	1	
		VARIABLE RESISTORS		
VR1, 2, 3, 4, 5, 6	EVLS3AA00B24	Semi-fixed Variable Resistor 20KΩ(B)	6	RS-610US
VR7, 8	EVLS3AA00B13	〃 1KΩ(B)	2	RS-269US
VR9, 10	EVLS3AA00B54	〃 50KΩ(B)	2	RS-671US
VR11, 12	EVLS3AA00B53	〃 5KΩ(B)	2	〃
VR21, 22	EVHOWA027A24	Variable Resistor 20KΩ(A)	2	Ⓝ
VR23, 24	EVHOWA027A15	〃 100KΩ(A)	2	Ⓝ
VR25, 26	EWK78A028A14	〃 10KΩ(A)	1	Ⓝ
VR403, 404	EVLS3AA00B24	Semi-fixed Variable Resistor 20KΩ(B)	2	RS-610US
VR405	EVLS3AA00B53	〃 5KΩ(B)	1	〃
		CAPACITORS		
C1, 2	ECQS1561JZ	Styrol Capacitor 560pF	2	
C3, 4	ECQS1681JZ	〃 680pF	2	
C5, 6	ECEA35M4R7	Electrolytic Capacitor 4.7μF	2	
C7, 8	ECEA16V100	〃 100μF	2	
C9, 10	ECCD1H391K	Ceramic Capacitor 390pF	2	
C11, 12	ECCD1H101K	〃 100pF	2	
C13, 14	ECEA6V470	Electrolytic Capacitor 470μF	2	
C15, 16	ECEA16V10	〃 10μF	2	
C17, 18	ECQS1681JZ	Styrol Capacitor 680pF	2	
C19, 20	ECQM05123KZ	Mylar Capacitor 0.012μF	2	
C21, 22	ECQS1391JZ	Styrol Capacitor 390pF	2	
C23, 24	ECEA16V10	Electrolytic Capacitor 10μF	2	
C25, 26	ECQM05123KZ	Mylar Capacitor 0.012μF	2	
C27, 28	ECEA16V10	Electrolytic Capacitor 10μF	2	
C29, 30	ECEA6V100	〃 100μF	2	
C31, 32	ECEA35V10	〃 10μF	2	
C33, 34	ECEA16V10	〃 10μF	2	

Ref. No.	Part No.	Part Name & Description	Pcs/ Set	Remarks
C35, 36	ECEA35V10	Electrolytic Capacitor 10μF	2	
C37, 38	ECEA16V10	〃 10μF	2	
C39, 40	ECEA50V1	〃 1μF	2	
C41, 42	ECQM05562KZ	Mylar Capacitor 0.0056μF	2	
C43, 44	ECQM05273KZ	〃 0.027μF	2	
C45, 46	ECQM05472KZ	〃 0.0047μF	2	
C47, 48	ECEA16V10	Electrolytic Capacitor 10μF	2	
C49, 50	ECEA50MR1	〃 0.1μF	2	
C51, 52	ECEA16V47	〃 47μF	2	
C53, 54	ECEA50ZR1	〃 0.1μF	2	
C55, 56	ECEA16V10	〃 10μF	2	
C57, 58	ECEA50ZR33	〃 0.33μF	2	
C59, 60	ECEA50ZR1	〃 0.1μF	2	
C61, 62	ECEA16V10	〃 10μF	2	
C63, 64	ECEA50ZR1	〃 0.1μF	2	
C65, 66	ECEA50ZR22	〃 0.22μF	2	
C67, 68, 69, 70	ECEA16V10	〃 10μF	4	
C71, 72	ECQM05473KZ	Mylar Capacitor 0.047μF	2	
C73, 74	ECQM05683KZ	〃 0.068μF	2	
C75, 76	ECEA35V10	Electrolytic Capacitor 10μF	2	
C77, 78	ECQM05122KZ	Mylar Capacitor 0.0012μF	2	
C79, 80	ECQS1681JZ	Styrol Capacitor 680pF	2	
C81, 82	ECEA50V1	Electrolytic Capacitor 1μF	2	
C83, 84	ECEA16V33	〃 33μF	2	
C87, 88	ECKD1H152KB	Ceramic Capacitor 1500pF	2	
C101, 102, 103				
	ECKD1H102PF	〃 1000pF	3	
C104	ECKD1H152KB	〃 1500pF	1	
C107	ECQM6223KZ	Mylar Capacitor SAFETY 0.022μF	1	
C151	ECEA6V330	Electrolytic Capacitor 330μF	1	
C201, 202	ECCD1H390K	Ceramic Capacitor 39pF	2	
C203	ECQF6332JZ	Mylar Capacitor 0.0033μF	1	
C204	ECQM05104KZ	〃 0.1μF	1	
C205	ECQS1471JZ	Styrol Capacitor 470pF	1	
C206	ECCD1H101K	Ceramic Capacitor 100pF	1	

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Ref. No.	Part No.	Part Name & Description	Pcs/ Set	Remarks
C300	ECEA25V330	Electrolytic Capacitor 330μF	1	
C301	ECEA25V220	〃 220μF	1	
C302	ECEA25V470	〃 470μF	1	
C303	ECEA35V470	〃 SAFETY 470μF	1	
C304	ECEA16V1000	〃 SAFETY 1000μF	1	
C401, 402	ECEA35V10	〃 10μF	2	
C403, 404	ECEA6V220	〃 220μF	2	
C405, 406	ECKD1H102PF	Ceramic Capacitor 1000pF	2	
		COMBINATION PARTS		
Z1, 2	QLM9Z002W	LC Combination Part	2	Ⓝ
		TRANSISTORS		
Tr1, 2	2SC1684	Transistor	2	Ⓝ
Tr3, 3, 5, 6, 7, 8	2SC828	〃	6	RS-610US
Tr9, 10	2SK30AD	〃	2	RS-263AUS
Tr11, 12	2SC828	〃	2	〃
Tr13, 14	2SA564	〃	2	〃
Tr15, 16, 17, 18, 19, 20, 51, 52, 53, 54				
	2SC828	〃	10	〃
Tr200	2SC1407	〃	1	RS-271US
Tr300	2SC1384	〃	1	RS-671US
Tr401, 402	2SC828	〃	2	〃
		INTEGRATED PARTS		
IC1, 2	QVITA7122AP	Integrated Circuit	2	Ⓝ
		DIODES & RECTIFIERS		
D2	RD7A	Diode	1	RS-271US
D3	OA90MLF	〃	1	RQ-543DS
D4	OA90M	〃	1	Ⓝ
D5, 6, 7, 8	MA26W	〃	4	RS-671US
D9, 10	OA91	〃	2	〃
D11, 12	1S1211	〃	2	〃
D151	OA90MLF	〃	1	〃

Ref. No.	Part No.	Part Name & Description	Pcs/ Set	Remarks
D300	SIB0102	Silicon Rectifier	1	RS-610US
D301	10DC1	〃	1	RS-671US
D302	10DC1R	〃	1	〃
		TRANSFORMERS		
T1, 2	QLT2D10A	Headphone Transformer	2	RS-671US
T4	QLPN12ELEWT	Power Transformer SAFETY	1	Ⓝ
		COILS		
L1, 2	QLQX2421Y	Dummy Coil	2	Ⓝ
L3, 4	QLQX0731W	Choke Coil	2	RS-671US
L5	QLB0158	Oscillator Coil	1	〃
		SWITCHES		
S1, 2	QSS8204	Slide Switch (Record/Playback Selector)	2	RQ-509S
S3	QSW2201AA	Push Switch (Dolby IN/OUT)	1	Ⓝ
S4	QSS2209T	Slide Switch (Muting)	1	Ⓝ
S5	QSW2201AA	Push Switch (Tape Selector)	1	Ⓝ
S6	QSB0169M1	Leaf Switch (Motor ON/OFF)	1	RS-263AUS
S7	ESB1134S23	Push Switch (Power ON/OFF) SAFETY	1	RS-610US
S8	QSS1166	Slide Switch (Peak Check)	1	Ⓝ
S9	QSR1403	Rotary Switch (AC Voltage Selector) SAFETY	1	Ⓝ
		JACKS		
J1, 2	QJA0237	MIC Jack	2	RS-676US
J3	QJA0238	Headphone Jack	1	〃
		PILOT LAMPS		
PL1	XAMQ22P200N	Pilot Lamp	1	RS-610US
PL2, 3	XAMQ17P200	〃	2	RS-263AUS
		ELECTRICAL PARTS		
E1	WY436AD	Record/Playback Head	1	RS-466TS
E2	QWY2118	Erase Head	1	RS-610US
E3	QSL1074RNM	Level Meter	2	Ⓝ

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Ref. No.	Part No.	Part Name & Description	Pcs/ Set	Remarks
E4	SJA83	AC Power Cord SAFETY	1	SD Supply
E5	XBA1E05NR1	Fuse SAFETY	1	RS-610US
E6	QEJ0322	Jack Board Assembly	1	Ⓝ
E7	QGJ1295	Jack Plate	1	Ⓝ
E8	QTW1118A	Spark Killer Cover	1	RS-671US
E9	QTF1032	Fuse Holder	1	RS-610US
E10	QTD1129	Cord Bushing	1	RS-263AUS
E11	QBG1222	Lamp Cover	1	RS-457S
E12	QKJ0077	Spacer (Peak Check Switch)	1	RS-273US
E13	QML2953	Record/Playback Selector	1	Ⓝ
E14	QMN1741A	Record/Playback Selector Shaft	1	Ⓝ
E15	QMA2790	Power Switch Angle	1	Ⓝ
E16	QMA2879	Peak Check Switch Angle	1	Ⓝ
E17	QNQ1051	Jack Nut	3	RS-610US
E18	XTN35+20BR	Screw ⊕3.5×20 (Red)	6	COMMON
E19	QMZ1101	Spacer (Red Screw)	6	RS-610US
E20	XUC3FT	Stop Ring 3φ	2	COMMON
		CABINET PARTS		
G1	QYM0311	Main Case Assembly	1	Ⓝ
G1-1	QYF0233	Cassette Lid	1	Ⓝ
G1-2	QMNM0002	Cassette Lid Shaft	1	RS-269US
G1-3	QBNM0009	Cassette Lid Spring-L	1	RS-610US
G1-4	QBNM0008	Cassette Lid Spring-R	1	〃
G1-5	QBT1489M	Auto Stop Spring	1	〃
G1-6	QXB0351	Push Button	2	RS-671US
G1-7	QBC1275	Push Button Spring	2	〃
G1-8	QMA2787	Stopper	1	Ⓝ
G1-9	QXB0403	Power Button	1	Ⓝ
G1-10	QBC1193A	Reset Spring	2	RQ-543DS
G1-11	QBW2015	Washer	2	RS-671US
G1-12	XUC3FT	Stop Ring 3φ	1	COMMON
G1-13	XTS3+8B	Screw ⊕3×8	1	〃
G2	QYM0312	Bottom Case Assembly	1	Ⓝ
G2-1	QBG1447	Rubber Foot	4	Ⓝ

Ref. No.	Part No.	Part Name & Description	Pcs/ Set	Remarks
G3	QYT0394	Volume Knob-A Assembly	4	Ⓝ
G4	QYT0395	Volume Knob-B Assembly	1	Ⓝ
G5	XSN26+8BC	Screw ⊕2.6×8	2	COMMON
G6	XTW3+10B	Screw ⊕3×10	6	〃
		ACCESSORIES		
A1	QFT6TCJNTBFZ	Cassette Tape	1	RS-610US
A2	RP023A	Connection Cord-G	2	RS-671US
A3	QJP0603S	AC Plug Adaptor	1	COMMON
A4	QQT1060	Instruction Book	1	Ⓝ
		PACKINGS		
P1	QPN3397	Inside Carton	1	Ⓝ
P2	QPA0187	Inner Cushion	1	Ⓝ
P3	QPA0188	〃	1	Ⓝ
P4	QPA0206	Spacer (Bottom)	1	Ⓝ
P5	XZB40X50A05	Poly Bag	1	RS-260US

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